DD/S&T-1737-79

5 APR 1979

DD/A Registry
File Contracts

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79-1118/1

MEMORANDUM FOR: Deputy Director for Administration

SUBJECT: DDA Development and Engineering Projects

REFERENCE: Programming for Exploratory Research (DD/S&T-1518-79) dated 29 March 1979

1.   The FY-81 program for ORD has been submitted in two parts: Exploratory Research, and Development and Engineering.

The first of these is a new designation used to program resources necessary to carry out the Exploratory Research function which ORD performs for all Agency components, including DDS&T offices. This approach is explained in some detail in the reference.

The second part of the ORD budget has been devoted to directed development projects for delivery by ORD to Agency components outside of DDS&T. These products are very often "tools" to be used by DDA in their efforts and are clearly not Exploratory Research. These efforts have been programmed in our submittal in the same manner as in recent years; i.e., each project has been identified as a line item directed toward a specific DDA problem. Those proposed line items appear in the appropriate Decision Unit at the Minimum, Current, and Enhanced levels. This part of ORD's budget has to compete with all other proposed R&D projects as well as other Agency requirements.

2.   I am requesting your endorsement of the FY-81 projects in the Development and Engineering category that are contained within the Multipurpose R&D Decision Unit of the DDS&T Program. (Outlined in Attachment 1 and described in detail in Attachment 2.) It is critical that you endorse and defend these efforts in the upcoming Comptroller hearings and all subsequent hearings or they will not survive the process.

LESLIE C. DIRKS
Deputy Director
for
Science and Technology

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Attachment 1

Multipurpose R&D Decision Unit

| Decision Package	ORD Project Title	DDA Office Endorsement Requested	Tab No.
MINIMUM	Polygraph Enhancements & Alternatives	OS	62-66
	High Security Document Protection	OS	55
	Advanced Text Retrieval	ODP	222
	Computer Security Technology	ODP, OS	210, 59
	Custom Analyst Data Terminal Design (Information Processing for Analysis)	ODP	203
CURRENT	This level does not include any ORD Projects proposed by the DDA.		
ENHANCED	This level does not include any ORD Projects proposed by the DDA.		

25

Polygraph Enhancements & Alternatives

25

SECRET

High Security Document Protection

X1
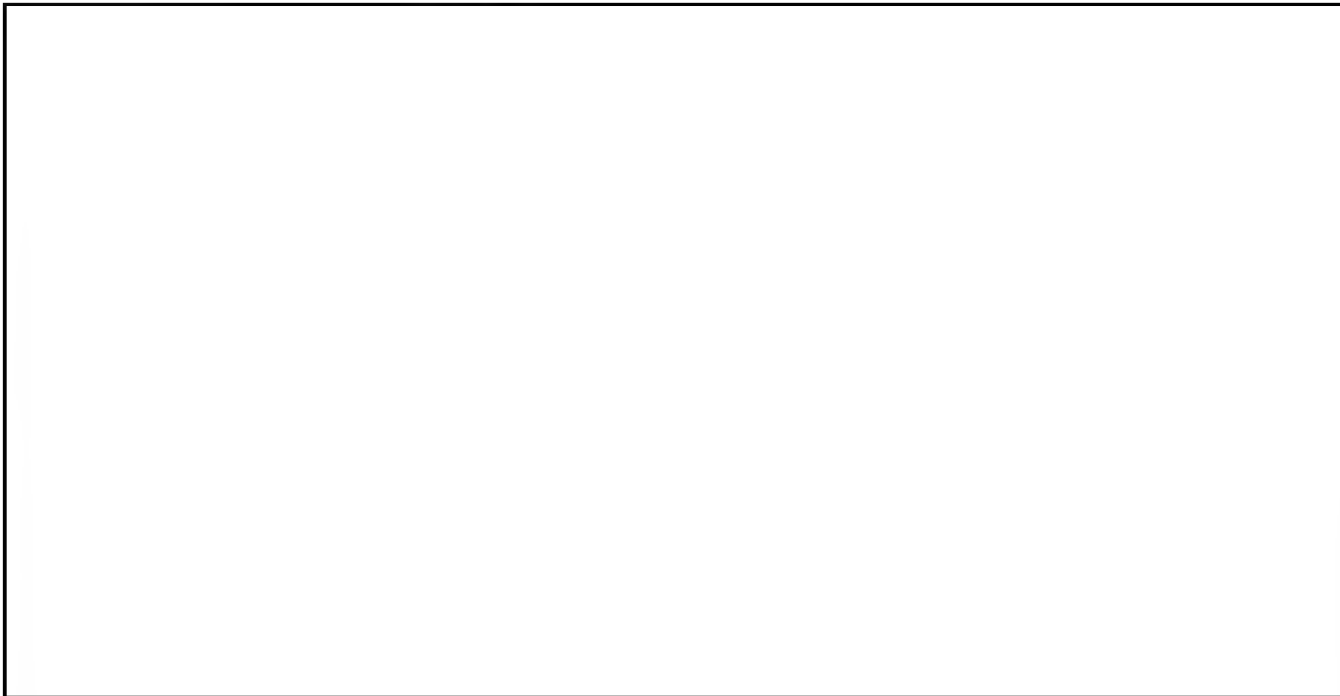
SECRET

Advanced Text Retrieval

Retrieval systems for Agency collections of computer stored documents are costly and are characterized by poor response time and limited retrieval capabilities. New capabilities are needed for document retrieval systems for multi-billion character files of textual data to support intelligence analysis.

These capabilities will permit the synthesis and retrieval of information which would be ignored by conventional approaches. The new capabilities require development and implementation of information processing concepts whose underlying theory is generally well-understood but which require feasibility analysis and experimentation and development work. Such development work has been limited by the ability of conventional computer systems to perform a large number of comparisons per second. The ORD-developed high speed text search machine has removed these limitations.

X1
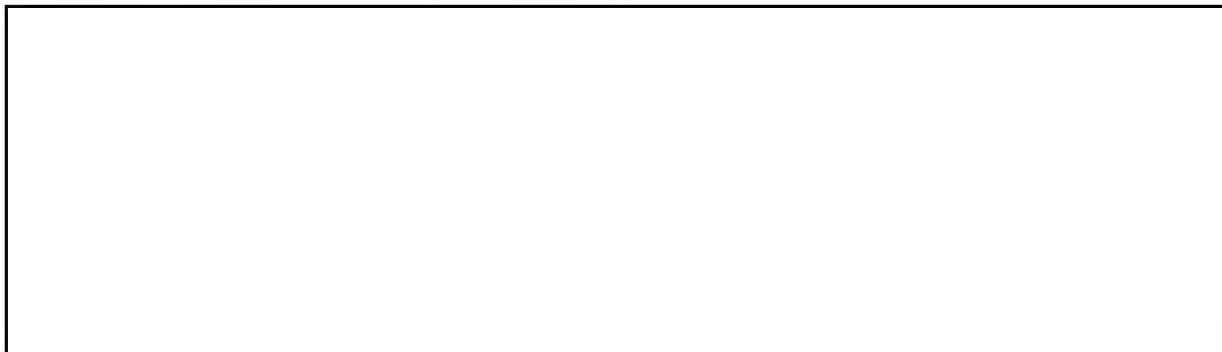
This project envisions a problem definition, feasibility study and initial experimentation effort in FY79 to be followed by prototype implementation in FY80 and prototype evaluation and refinement in FY81. Finally, in FY82 an IOC advanced text search system is expected to be completed and in use.

FY 81: $150K

This project is proposed in ORD's MINIMUM level.

Computer Security

The basic objective of computer security activity is to provide security measures which reduce the threat to an acceptable level. To the Agency, as an extensive user of computer systems, computer security is critically important to maintain the viability of intelligence analysis and production. This concern is due in part to: a) increasing volume of information processing by computer, motivated by cost benefit and the increasing availability of machine-readable information, b) growing demands for distributed systems and data bases, both functional and geographic, made possible by mini and microcomputers and storage cost decreases, c) increasing use of remote telecommunications access to computers and d) the likelihood of greater networking of information and data bases throughout the intelligence community.

A lack of secure computer systems can not only inhibit the performance of an organization's functions, but may also jeopardize the organization's very existence. Solving the computer security problem, particularly in the computer networking and distributed processing environment, requires an integrated approach including hardware, software and firmware. Any approach to computer security must include the many aspects of the problem, such as physical, personal, technological and environmental factors.

The requirements for computer security are broad, multi-disciplinary, often complex and frequently ill-defined. ORD surveyed the computer security problems which could arise in the 1980-1985 time frame and began a program, coordinated with OS, to address the major security problems uncovered in the survey.

FY 81: $200K

This project is proposed in ORD's MINIMUM level.

Information Processing for Analysis

Various Agency production components have widely differing needs for information processing support. Currently planned information systems either support only a very narrow range of analytical activity (TADS, NDS) or provide a limited range of services to a broad range of users (SAFE). This project addresses the clear need for development of advanced hardware/software concepts to support intelligence analysis. The concepts include a variety of sophisticated support facilities useful for a broad range of analytical disciplines and problems.

During FY79, a thorough study has been undertaken to characterize the information processing needs of intelligence analysts, to build on previous Agency studies of intelligence analysis, and to characterize the process of intelligence analysis from an information processing point of view. This study includes force-based, discipline-based and geographic-based analysis; it will conclude with the design of a testbed system for one analytical organization. In FY79-80, the testbed system will be implemented and installed. Estimated expenditures for the testbed will total $450K over the two years. In FY81, detailed experimentation will be conducted with system users to gain user familiarity and assess user acceptability. The FY81 effort also includes a plan for customizing the workstation capabilities for use by other analytical components.

FY 81: $150K

This project is proposed in ORD's Minimum level.